

## Claims

I claim:

1. An adjustable air cushion bicycle seat hydraulic ram system mounted within the seat post of a bicycle frame, having:
  - a. a hollow ram with one end attached to the bicycle seat and an open end,
  - b. an internal bicycle frame reservoir with an open end secured to the seat post sized to accommodate the open end of the ram slideably sealed in the internal bicycle frame reservoir open end to create an enclosed pressurized liquid/air column within the internal bicycle frame reservoir, which has
  - c. a valve with walls defining channels in communication and located between the internal bicycle frame reservoir and
  - d. an adjustable pressurized air/liquid reservoir having filling means to selectively fill the air/liquid reservoir such that the valve adjusts the height, volume, and pressure of the air and liquid columns within the internal bicycle frame reservoir to form a desired air cushion within the ram to provide the desired ride cushion.
2. An adjustable air cushion bicycle seat hydraulic ram system according to Claim 1, wherein the thickness of the valve walls and size of its channels and the type of liquid are selected to provide hydraulic flow resistance to delay the response of the ram to rapid changes in the internal bicycle frame reservoir pressure to prevent abrupt extension or contraction of the ram mounted seat to shock to the rider.
3. An adjustable air cushion bicycle seat hydraulic ram system according to Claim 1, wherein the valve may open in communication with the adjustable pressurized air/liquid reservoir such that the air cushion ride is also dependent on the pressure and volume of air and liquid in the pressurized air/liquid reservoir as well as that in the internal bicycle frame reservoir.
4. An adjustable air cushion bicycle seat hydraulic ram system according to Claim 1, including a sliding tubular extender slideably attached about the ram such that it may be moved and locked thereto to provide a desired length extension to the ram with another end attached to the seat to elevate the seat to a desired height when the internal reservoir is filled and positioned to provide the desired ride cushion.

5. An adjustable air cushion bicycle seat hydraulic ram system according to Claim 1, including a mounting knee with one end attached to the bicycle seat post and the other end attached to the seat to limit the extension of the ram and prevent twisting of the seat.

6. An adjustable air cushion bicycle seat hydraulic ram system according to Claim 1, wherein the valve comprises a capped open tube with a rim and sidewalls defining flow channels slideably mounted about the ram such that the flow channels lead into the interior of the internal reservoir when the tube is in an open position, and are closed when the tube moves to position its rim to obstruct the flow channels in a closed position.

7. An adjustable air cushion bicycle seat hydraulic ram system according to Claim 1, including a set valve associated with the adjustable pressurized air/liquid reservoir to isolate the internal reservoir from the pressurized reservoir to maintain a pre-selected pressure and volume of air and liquid in the internal reservoir.

8. An adjustable air cushion bicycle seat hydraulic ram system according to Claim 1, wherein the pressurized reservoir is sized to hold sufficient liquid to fill the interior of the ram, when fully extended.

9. An adjustable air cushion bicycle seat hydraulic ram system according to Claim 1, wherein the adjustable pressurized air/liquid reservoir is structured to collect and remove foam from the internal reservoir.

10. An adjustable air cushion bicycle seat hydraulic ram system according to Claim 1, wherein the liquid is a lubricating oil with fibers adapted to maintain viscosity over the temperature operating range of the bicycle and minimize leakage as the ram moves.

11. An adjustable air cushion bicycle seat hydraulic ram system mounted within the seat post of a bicycle frame, having:

a. a hollow ram with one end attached to the bicycle seat and an open end,

b. an internal bicycle frame reservoir with an open end secured to the seat post sized to accommodate the open end of the ram slideably sealed thereto to create an enclosed pressurized oil/air column, which is in communication with

- c. a pressurized air/oil reservoir, and
- d. valve means associated with a fill tube ducting system connecting and in communication with the pressurized air/oil reservoir and internal bicycle frame reservoir to control the pressure and volume of air and liquid directed into the internal bicycle frame reservoir to selectively fill and adjust the height, volume, and pressure of the air and oil columns within the internal bicycle frame reservoir to form the desired air cushion within the ram to provide the desired ride cushion; said pressurized air/oil reservoir including
  - e. injection means in communication with the pressurized air/oil reservoir to vary the amount, and pressure of air and liquids contained therein,
  - f. a sliding extension associated with the ram and seat such that it may be locked to the ram to extend the seat to a desired height when the internal reservoir is filled and positioned to extend the ram to provide the desired ride cushion, and
  - g. a mounting knee with one end attached to the bicycle seat post and the other end attached to the seat to limit the extension of the ram and prevent twisting of the seat.